DOCUMENT RESUME

ED 219 420 TM 820 432

AUTHOR Chodzinski, Raymond T.; Randhawa, Bikkar S.
TITLE Validity of Career Maturity Inventory.
SPONS AGENCY Saskatchewan School Trustees Association, Regina.
PUB DATE Mar 82
NOTE 28p.; Paper presented at the Annual Meeting of the American Educational Research Association (66th, New York, NY, March 19-23, 1982).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Career Development; Factor Structure; Foreign Countries; Intelligence; Job Performance; *Maturity Tests; Personality Measures; Predictor Variables; Secondary Education; *Test Validity; *Vocational Maturity
IDENTIFIERS *Career Maturity Inventory (Crites); Saskatchewan

ABSTRACT

Validity of the Career Maturity Inventory (CMI) was investigated using 279 grade ten and 256 grade twelve students. Factor analysis of the ten subtests of the CMI and the regression of the CMI variables on intelligence scores, sex, and grade indicated partial support of the theoretical postulations. Two principal factors emerged, but the CMI Competence and Attitude subtests did not load distinctly on the separate factors. As expected, intelligence, grade, and sex were found to be significant predictors of the CMI variables. However, evidence for discriminant validity was unsatisfactory and inconsistent with the theoretical framework of CMI. Implications for theory and practice are discussed. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED219420

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Validity of Career Maturity Inventory [1, 2]

Raymond T. Chodzinski and Bikkar S. Randhawa

University of Saskatchewan

Dr. Bikkar S. Randhawa

Department of Educational Psychology

University of Saskatchewan

Saskatoon, Canada S7N 0W0

Phone: (306) 343-5510

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

B.S. Randhawa

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Running Head: Vocational Maturity

[1]Paper presented at the American Educational Research Association Annual Meeting, New York, March 19-23, 1982.

[2]Funds for this research were provided by the Saskatchewan School Trustees Association. The authors are grateful for their generous support.

TM 820 432

Abstract

Validity of the Career Maturity Inventory (CMI) was investigated using 279 grade ten and 256 grade twelve students. Factor analysis of the ten subtests of the CMI and the regression of the CMI variables on intelligence scores, sex, and grade indicated partial support of the theoretical postulations. Two principal factors emerged, but the CMI Competence and Attitude subtests did not load distinctly on the separate factors. As expected, intelligence, grade, and sex were found to be significant predictors of the CMI variables. However, evidence for discriminant validity was unsatisfactory and inconsistent with the theoretical framework of CMI. Implications for theory and practice are discussed.

Validity of Career Maturity Inventory

Vocational maturity has been defined as a theoretical construct representing an individual's stage of vocational development along a continuum of vocational tasks, attitudes, skills, and behaviours (Crites, 1961, 1965; Super, 1955; Super, Crites, Hummel, Moser, Overstreet & Warnath, 1957; Super & Overstreet, 1960). Crites (1961, 1965) elaborated on Super et al's. (1957) formulations regarding the career maturity construct and defined them in terms of measurable components. Crites (1978a) argued that "orientation to vocational choice, formation and planning, and certain aspects of the crystallization of traits dimensions can be further analyzed into several different kinds of choice competencies and attitudes" (p. 4).

Crites (1978a) proposed a hierarchical factor structure model for career maturity in terms of career choice content and career choice process dimensions. Four group factors comprised the model: (1) consistency of career choices, (2) realism of career choices, (3) career choice competencies, and (4) career choice attitudes. The first two factors are classified as career choice content whereas the latter two factors are referred to as career choice process factors. Career choice content pertains to actual occupational choice, preference, and intent; career choice process "refers to the variables involved in arriving at a declaration of career choice content" (Crites, 1978a, p. 4).

The Career Maturity Inventory (CMI) (1978) is a revised edition of an instrument originally called the Vocational Development Inventory (VDI). The VDI was developed by Crites in 1964 and has evolved as a standardized measure of career maturity process group factors. These include career choice attitudes and career choice competencies. The present edition of the CMI assesses five attitudinal variables and five competency variables.

Although the instrument has been revised several times, the theoretical basis for its rationale remains essentially the same. Crites (1978b) states "increasing confidence can be placed in the salience and usefulness of the CMI as a conceptually relevant and psychometrically sound inventory of two major dimensions of career maturity: career choice attitudes and career choice competencies" (p. 4). However, several studies have raised concerns regarding the substantiveness of the career maturity model and the validity of the Career Maturity Inventory (Lawrence & Brown, 1976; LoCascio, Nesselroth & Thomas, 1976; Moore & McLean, 1977; Westbrook, 1976; Westbrook, Cutts, Madison & Arcia, 1980; Zytowski, 1978). Several of these studies reported that a significant proportion of the variance in the CMI scores could be accounted for by intelligence and achievement variables. Westbrook et al. (1980) have argued on the basis of observed high correlations between intelligence and the CMI scores in their study that the CMI might not significantly discriminate between intelligence variables and career maturity variables.

Other research has demonstrated that there may be problems with the substantiveness of some of the theoretical expectations pertaining to the Crites' model of career maturity. For instance, Crites (1961, 1965) predicted no sex differences on CMI scores. However, Alexander (1976), Omvig & Thomas (1977), and Rathburn (1973) reported contrary findings - - females significantly higher than males on the CMI subscore means. Subsequently, Crites (1978b) revised his theoretical expectation which is consistent with the research evidence. Crites (1961, 1965) also posited that career maturity development is monotonic. Although several studies supported a general developmental progression (Ansell & Hansen, 1971; Breton, 1972; Herr & Enderlein, 1976; Kelso, 1977); these findings demonstrated that the progression was not always strictly linear. In view of this evidence, Crites (1978a) revised his strictly linear view of

career maturity development and admitted slight variations in the linear and monotonic pattern.

Studies (Dillard, 1979; Lawrence & Brown, 1976; Pound, 1978; Rehberg & Hotchkiss, 1979; Smith, 1976) which examined the relationship of self-concept and career maturity variables had raised concerns with some of the underlying assumptions regarding career maturity development. As a predictor variable it would seem that self-esteem does not appear to explain much of the variance in career maturity scores.

The significant influence of socioeconomic status on vocational development was established by Blau & Duncan (1967), Crites (1965, and Super, Starishevsky, Matlin, and Jordaan (1963). More recent studies by Ansell and Hansen (1971), Maynard and Hansen (1970) and Smith (1976) supported the assumption that lower socioeconomic youth might not exhibit similar patterns of career maturity development as middle or upper socioeconomic level adolescents. Perhaps the CMI is a more appropriate instrument for the middle class adolescents than for those of the low socioeconomic status due to validity concerns which pertain to test bias.

Westbrook et al. (1980) questioned the substantiveness of the career maturity model, and therefore the construct validity of the CMI. They reported a lack of congruence between the results of their factor analysis of the career maturity variables and the theoretical expectation postulated by Crites (1973). Westbrook et al. reported that career maturity variables of the 1973 CMI loaded only on a single factor. This finding is contrary to Crites' (1973) argument that attitude and competence variables constitute two separate factors of career maturity.

The present study sought to investigate the validity-related concerns within the context of the revised 1978 edition of the CMI. Specifically, the

objectives of this study were to (1) investigate the factor structure of the ten subtests of the 1978 edition of the CMI, (2) validate the obtained factor structure against Crites (1978b) postulations that the competence subtests and the Attitude subtests should converge on separate factors, and (3) validate Crites (1978b) theoretical postulations regarding the relationship of sex, grade, and intelligence with career maturity variables. A fourth dimension of the present study was to ascertain how much of the criterion variance the selected variables account for and to determine the best predictor set for each of the ten criterion subscores of the 1978 CMI.

Method

Sample

The sampling procedure involved listing the following strata and substrata. Nine school regions in the province of Saskatchewan, Canada comprised the strata. Within each region, schools that contained grade 10 and 12 students were identified. Based on percentage contributions to the total population, each school region was awarded a representative percentage of the total sample. Schools were selected on a random basis from a pool which represented each school region. Eleven schools and 22 classrooms (11 grade 10 and 11 grade 12) were randomly selected. A total of 257 boys (138 grade 10 and 119 grade 12) and 278 girls (141 grade 10 and 137 grade 12) were included in the sample.

Instruments

The following standardized instruments were administered to all grade 10 and 12 students in the sample: the Otis-Lennon Mental Ability Test, Advanced Level, Form J (Otis & Lennon, 1969), the Career Maturity Inventory Attitude B-1 Counseling Form and Competence Test (Crites, 1978b), the Tennessee Self Concept Scale (Fitts, 1965), and the Rotter I-E Scale

(Rotter, 1966). In addition, a short questionnaire which included items of a socioeconomic scale and questions pertaining to estimated part-time work experience were administered. The socioeconomic scale is an adapted version of the one described and used by McLaughlin, Hunt, and Montgomery (1976).

Procedure

At all schools the instruments were administered in the classroom or a large room by the principal investigator. Approximate time required to complete the instruments and the student questionnaire was four hours. The entire test administration was completed over a five week period during the winter of 1980. The tests were administered in the following order: the Otis-Lennon Mental Ability Test, the CMI Attitude, the Questionnaire, and the Tennessee Self Concept Scale. After the lunch break the Rotter I-E Scale and the CMI Competence Test were administered.

Analyses

Stepwise Multiple Regression analyses were used to determine the regression equations. A Pearson product moment correlation matrix of the scores of the ten subtests of the CMI was submitted to an iterative principal factor analysis (Harman, 1976) followed by varimax rotation (Kaiser, 1958). The number of factors were further examined using the scree test (Cattell, 1966). A test for the significance of difference of correlated correlations (Walker & Lev, 1953) was employed to examine the discriminant validity of the test.

Results

Summaries of the means and standard deviations for the grade 10 and 12 groups are provided in Tables 1 and 2. The Pearson product moment correlation matrix is presented in Table 3.

Insert Tables 1 - 3

Regression analyses revealed that intelligence, grade, and sex were significant predictors of the total Attitude and Competence scores of the CMI. Parameters for inclusion of predictors to the final regression analysis were that a given predictor exceeded the .05 level of significance for the partial F-ratio and that it contributed at least one per cent of the explained variance for a criterion at a given step. Range of multiple R for the six regression equations of the Attitude Scale is .23 to .44 and the R^2 range is from .05 to .20. The multiple R range for the six equations of the competence Test is .44 to .66 and the R^2 range is from .20 to .44. The contribution of the predictor variables to the magnitude of R^2 for each prediction equation is provided in Table 4.

Insert Table 4

Examination of the obtained regression equations revealed that, for the Attitude subtests Involvement in Career Decision Making and Independence in Career Decision Making and the Attitude Total score, sex was a significant predictor. Grade was a significant predictor for the Attitude subtest Compromise in Career Decision Making and the Attitude Total score. Sex or grade variables did not significantly affect the magnitude of R^2 for the regression equations of the Attitude subtests Decisiveness in Career Decision Making or Orientation to Career Decision Making. With respect to the Competence Test variables, sex and grade werre significant predictors for all of the regression equations.

Intelligence (DIQ) emerged as a major predictor of the majority of the CMI variables. A test for the significance of difference between the correlated

correlation coefficients of a CMI subtest within the Attitude or Competence parts with another and its correlation with the DIQ was employed. The required t at the .05 level of significance for a one tailed test was 1.645. Thirteen of the 20 t values for the Attitude sub-scale correlations and eight of the 20 t values for the Competence subtests correlations were not significant. Thus 21 of the 40 correlations of subtest with a subtest in the corresponding part of the CMI are not larger than their correlations with the intelligence test.

The correlation matrix for the ten subscores of the CMI was factor analyzed using a principal factor solution (Harman, 1967) followed by the varimax rotation (Kaiser, 1958). Two principal factors corresponding to the eigen values greater than 1.0 of the principal components solution were retained. The resultant two factors given in Table 5 accounted for 69.4% and 30.6% of the common variance and 28.5% and 12.6% of the total variance respectively.

Insert Table 5

An examination of the factor matrix shows that the first factor was defined by high loadings of the Competence subtests and a moderate loading of the Attitude subtest, Involvement in Career Decision Making. Factor II was primarily defined by high loadings of the Attitude subtests; Decisiveness in Career Decision Making, Orientation to Career Decision Making, and Compromise in Career Decision Making. Communalities for the nine subtests which evidenced significant (>.40) loadings (Randhawa & Korpan, 1973) on one of the factors ranged from .21 to .67. The Attitude subtest Independence in Career Decision Making did not load significantly on either factor and demonstrated low communality (.07).

An additional principal factor analysis was done using the correlation matrix obtained from the total sample for the career maturity variables and the predictor variables DIQ, TSC, and I-E. A three factor matrix emerged which proved to be unparsimonious. Also, eigen values of less than 1.00 were obtained after the iterative solution had stabilized the communalities. Therefore, an iterative common factor analysis, specifying two factors, was employed. Factors were selected on the basis of Kaiser's (1958) criterion which recommends that the retained factors receive eigen values of at least 1.00. Also, Cattell's (1966) scree test for the number of factors was utilized to insure the retention of the appropriate number of factors. The varimax rotated matrix is given in Table 6.

Insert Table 6

Factor I was defined by high loadings of the Competence subtests, DIQ, and a moderate loading of the Attitude subtest, Involvement in Career Decision Making. Factor II was primarily defined by high loadings of Attitude subtests; Decisiveness in Career Decision Making and Involvement in Career Decision Making; and moderate loadings of Compromise in Career Decision Making and the predictor variable self-esteem. Similar to the Factor Analysis presented in Table 5, Independence in Career Decision Making did not load significantly on either factor and it also had a very low communality.

The resultant two factors in Table 6 accounted for 71.0% and 29.0% of the common variance and 32.86% and 13.4% of the total variance respectively. Communalities ranged between .06 and .63.

Discussion

The finding that intelligence (DIQ) was a significant contributor to a majority of the regression equations is consistent with data reported by Lawrence and Brown (1976), and Westbrook, Cutts, Madison, and Arcia (1980). The results of the present study differ from the Westbrook et al's. (1980) findings in that the correlation coefficients between the Competence subtests and the Otis-Lennon are lower. The results of the present study support Crites' (1978a, 1978b) theoretical assumptions regarding the expected relationship between IQ and the Competence subtests.

DIQ emerged as a significant predictor for the Total Attitude score and three of the Attitude subtests; Involvement in Career Decision Making, Independence in Career Decision Making, and Compromise in Career Decision Making. Since Crites (1978a) refers to the Attitude subtests as "non-intellective scales" (p. 22), the significant relationship between DIQ and the Attitude variables is surprising. Also interesting is the fact that the Attitude subtest, Involvement in Career Decision Making, loaded significantly on the same factor as DIQ and the Competence subtests.

The results pertaining to the relationship of the variables self-esteem, locus of control, and part-time work experience are consistent with data reported in previous studies. The finding of a weak but significant relationship with self-esteem and career maturity variables is supported by Lawrence and Brown (1976), Jones, Hansen and Putnam (1976), Pound (1978), and Rehberg and Hotchkiss (1979). Despite the fact that self-esteem was the major predictor for two Attitude subtests, the R^2 values did not exceed .09. The relationships between locus of control and CMI variables were generally significant at the .05 level; however, its contribution to the magnitude of R^2

was negligible. These findings are similar to those reported by Ifenwanta (1978) and Lokan and Boss (1977).

Although the relationship of part-time work experience with career maturity variables was weak but significant at the .05 level for several of the subtests, it emerged as a significant predictor only for the Attitude subtest Orientation to Career Decision Making. As in the case of self-esteem and locus of control, the effect on the explained overall variance was negligible. This finding is supported by Mahan (1973).

Socioeconomic status did not emerge as a significant predictor of career maturity. This result supports findings by Lawrence and Brown (1976) and is contrary to data presented by Smith (1976). Crites (1978a) postulated that socioeconomic circumstances may account for depressed performance on the Career Maturity Inventory. The results of the present study are contrary to Crites' (1978a) postulation.

Sex and grade variables emerged as significant predictors of career maturity. The finding that females tended to score higher than males is consistent with Crites' (1978a) revised expectation regarding the relationship between sex and career maturity variables. It should be noted that this finding is more applicable to the Competence section of the CMI. These results support studies by Herr and Enderlein (1976), Neely (1980), Omvig and Thomas (1977), and Rathburn (1973). In the case of the Attitude Scale, females scored higher on the Total Attitude Score and two of the subtests, Involvement in Career Decision Making and Independence in Career Decision Making.

Grade was a significant predictor for all of the Competence subtests and the Competence Total score. This result supports Crites' (1978a) concept of monotonic increases in career maturity Competence variables. Similar findings are reported by Alexander (1976), Ansell and Hansen (1971), and Herr and

Enderlein (1976). Although, in the case of the Attitude Scale, grade significantly influenced the prediction equation for Compromise in Career Decision Making and the Total Attitude score, general support for monotonic increases in career maturity with respect to CMI Attitude variables was not obtained.

With regard to the discriminant validity of the CMI, the results tend to support the claim of Hanna and Neely (1978), Westbrook (1976), and Westbrook et al. (1980) claim that discriminant validity may be a problem with the CMI. It should be noted however, that certain subtests of the CMI did achieve satisfactory discriminant validity. In particular, Competence subtests, Goal Selection and Problem Solving, and Attitude subtests, Decisiveness and Orientation, provided reasonable evidence of discriminant validity.

The construct validity of the CMI, with respect to the two factor structure proposed by Crites' model (1978a, 1978b), was partially supported by the findings of the present study. This finding is contrary to the results of the Westbrook et al's. (1980) investigation which reported one factor. Although two factors emerged from our analysis, the Attitude subtest, Involvement in Career Decision Making, loaded significantly on the same factor as the Competence tests and the Attitude substest, Independence in Career Decision Making did not have sufficiently high loading on either factor. In fact, this subtest had a very low communality. The findings of the present study did not support Crites' (1978a, 1978b) theoretical postulation that the Attitude subtests converge on an overall factor of attitudinal maturity.

Moderate support for the construct validity of the Competence Test emerged since the intertest correlation coefficients ranged within the theoretical expectations (.40 to .60) of Crites (1978a, 1978b). The intertest correlation coefficients obtained for the Attitude Scale in the present study suggest that

there may be a problem with construct validity of this scale. Although the coefficients for Compromise in Career Decision Making were within the ranges reported by Crites (1978a, 1978b), the intertest coefficients of the other subtests were not quite within the range .18 to .55 reported by Crites (1978a, 1978b). Evidence of possible validity problems is also provided by the factor analysis results which revealed that the Attitude subtests Involvement in Career Decision Making and Independence in Career Decision Making did not load on the same factor as the other Attitude variables.

In light of the construct validity problems with the CMI identified in the present investigation, the use of the MCI for vocational guidance and counselling should be made with caution. Especially important to note in practice is the lack of evidence for the monotonic increase in the vocational attitudes.

References

Alexander, G. M. A comparative analysis among three secondary groups of Alabama's urban disadvantaged with respect to career maturity (Doctoral dissertation, University of Tennessee, 1976). Dissertation Abstracts International, 1976, 37, Sec A, P5074.

Ansell, E. M., & Hansen, J. C. Patterns in vocational development of urban youth. Journal of Counseling Psychology, 1971, 18, 505-508.

Blau, J., & Duncan, O. The American occupational structure. New York: 1967.

Breton, R. Social and academic factors in career decisions of Canadian youth. Ottawa: Information Canada, 1972, cat. no. MP53-472.

Cattell, R. B. The scree test for the number of factors. Multivariate Behavior Research. 1966, 1, 140-161.

Crites, J. O. A model for the measurement of vocational maturity. Journal of Counseling Psychology, 1961, 8, 255-259.

Crites, J. O. Measurement of vocational maturity in adolescence: I. Attitude test of the vocational development inventory. Psychological Monographs: General and Applied, 1965, 79, 1-36.

Crites, J. O. Career maturity inventory - Theory and research handbook. Monterey: McGraw-Hill, 1973.

Crites, J. O. CMI theory and research handbook (2nd ed.). Monterey, California: CTB/McGraw-Hill, 1978(a).

Crites, J. O. CMI administration and use manual (2nd ed.). Monterey, California: CTB/McGraw-Hill, 1978(b).

Dillard, J. Relationships between career maturity and self-concepts of suburban and urban middle and urban lower class preadolescent black males. Journal of Vocational Behavior, 1979, 9, 311-320.

Fitts, W. H. Manual. Tennessee self-concept scale. Nashville, Tennessee: Counselor Recordings and Tests, 1965.

Guilford, J. P. & Fruchter, B. Fundamental statistics in psychology and education. New York: McGraw-Hill, 1978.

Hanna, G. S., & Neely, M. A. Discriminant validity of career maturity inventory scales in grade 9 students. Educational and Psychological Measurement, 1978, 38, 571-573.

Harman, H. Modern factor analysis (2nd ed.). Chicago: University of Chicago Press, 1967.

Herr, E. L., & Enderlein, T. E. Vocational maturity: The effects of school, grade, curriculum, and sex. Journal of Vocational Behavior, 1976, 8, 227-238.

Ifenwanta, S. Locus of control, career maturity, and perceived needs for life long education of Nigerian students in the United States (Doctoral dissertation, Boston University, 1978). Dissertation Abstracts International, 1979, 39 (09), 5232A. (No. 7906506)

Jones, O. M., Hansen, J. C., & Putnam, A. B. Relationship of self-concept and vocational maturity to vocational preferences of adolescents. Journal of Vocational Behavior, 1976, 8, 31-40.

Kaiser, H. F. The varimax criterion for analytic rotation to factor analysis. Psychometrika, 1958, 23, 187-200.

Kelso, I. G. The relation of school grade to ages and stages in vocational development. Journal of Vocational Behavior, 1977, 10, 287-301.

Lawrence, W., & Brown, D. An investigation of intelligence, self-concept, socioeconomic status, race, and sex as predictors of career maturity. Journal of Vocational Behavior, 1976, 9, 43-52.

LoCascio R., Nesselroth, J., & Thomas, M. The career development inventory: Use and findings with inner city dropouts. Journal of Vocational Behavior, 1976, 8, 285-292.

Lokan, J. J., & Boss, M. W. The relationship between locus of control and indices of vocational maturity in adolescents. Paper presented at the annual meeting of the American Educational Research Association, New York, April, 1977. (ERIC Document Reproduction Service No. ED 142 916).

Mahan, C. L. Work experience as a correlate of the vocational maturity of college freshmen (Doctoral dissertation, University of Alabama, 1973). Dissertation Abstracts International, 1973, 3A, 2305A-2306A. (No. 73-27,312)

Maynard, P. E. & Hansen, J. C. Vocational maturity among inner youths. Journal of Counseling Psychology,1979, 17, 400-404.

McLaughlin, G. W., Hunt, K. W., & Montgomery, J. R. Socioeconomic status and the career aspirations and perceptions of women seniors in high school. Vocational Guidance Quarterly, 1976,25, 155-163.

Moore, T. L., & McLean, J. E. Research in brief: Short reports of research interest: A validation study of the career maturity inventory attitude scale. Measurement and Evaluation in Guidance, 1977, 10, #2.

Neely, M. A. Career maturity inventory interpretations for grade 9 boys and girls. Vocational Guidance Quarterly, 1980, 29, 113-123.

Omvig, C. P., & Thomas, E. G. Relationship between career education, sex, and career maturity of sixth and eighth grade pupils. Journal of Vocational Behavior, 1977, 11, 322-331.

Otis, A. S., & Lennon, R. T. Otis-Lennon mental ability test: Manual for administration. The Psychological Corporation, 1969.

Pound, R. E. Using self-concept subscales in predicting career maturity for race and sex subgroups. Vocational Guidance Quarterly, 1978, 27, 61-70.

Randhawa, B. S., & Korpan, S. M. Assessment of some significant affective variables and the prediction of achievement in French. Canadian Journal of Behavioural Science, 1973, 5, 24-33.

Rathburn, C. Career maturity inventory - Attitude scale: Analyses of longitudinal data. Unpublished manuscript, 1973. Cited in J. O. Crites. CMI Theory & research handbook (2nd ed.). Monterey, California: CTB/McGraw-Hill, 1978.

Rehber, R., & Hotchkiss, L. Career counseling in contemporary U. S. high schools. Review of Research in Education, 1979, 7, 92-147.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (1, Whole No. 609).

Smith, E. J. Reference group perspectives and the vocational maturity of lower socioeconomic black youth. Journal of Vocational Behavior, 1976, 8, 321-336.

Super, D. E. The dimensions and measurement of vocational maturity. Teachers College Record, 1955, 57, 151-163.

Super, D. E., Crites, J. O., Hummel, R., Moser, H., Overstreet, P., & Warnath, C. Vocational development: A framework for research: Career pattern study. New York: Teachers College Columbia University Bureau of Publications, 1957.

Super, D. E., & Overstreet, P. L. The vocational maturity of ninth grade boys. New York: Teachers College Columbia University Bureau of Publications, 1960.

Super, D. E., Starishevsky, R., Matlin, N., & Jordaan, J. P. (eds.). Career development: Self-concept theory. New York: College Entrance Examination Board, 1963.

Walker, H. M., & Lev, J. Statistical inference. New York: Holt, Rinehart, and Winston, 1953.

Westbrook, B. W. Criterion-related and construct validity of the career maturity inventory competence test with ninth grade pupils. Journal of Vocational Behavior, 1976, 9, 377-383.

Westbrook, B. W., Cutts, D. D., Madison, S. S., & Arcia, M. A. The validity of the Crites' model of career maturity. Journal of Vocational Behavior, 1980, 16, 249-281.

Zytowski, D. G. A review of the career maturity inventory. In O. K. Buros (ed.). The Eighth Mental Measurements Yearbook. Highland Park, New Jersey: The Gryphon Press, 1978.

Table 1
Means and Standard Deviations of
Criterion and Predictor Variables for the
Grade 10 Sample

	Variables	Males (N = 138)		Females (N = 141)		Total (N = 279)	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
1.	Decisiveness in career decision making (AT1)	4.50	2.39	4.39	2.24	4.44	2.32
2.	Involvement in career decision making (AT2)	8.74	1.36	9.21	1.16	8.97	1.28
3.	Independence in career decision making (AT3)	8.64	1.36	8.98	1.31	8.81	1.35
4.	Orientation to career decision making (At4)	6.95	2.31	6.77	2.27	6.86	2.29
5.	Compromise in career decision making (AT5)	5.18	1.27	4.96	1.38	5.07	1.33
6.	Attitude total (AIT)	32.67	4.56	33.62	4.59	33.15	4.59
7.	Self-appraisal (P1)	12.49	3.36	14.31	2.80	13.41	3.22
8.	Occupational information (P2)	15.51	2.89	16.34	2.49	15.93	2.72
9.	Goal selection (P3)	12.51	3.24	13.66	2.76	13.09	3.06
10.	Planning (P4)	10.78	3.78	12.04	3.56	11.42	3.72
11.	Problem solving (P5)	8.27	3.00	10.52	3.14	9.41	3.27
12.	Competence test total (PT)	59.56	12.70	66.87	10.67	63.25	12.26
13.	Otis-Lennon (DIQ)	105.99	14.12	106.98	14.45	106.49	14.27
14.	Tennessee self-concept (I-E)	325.18	26.52	321.31	33.91	323.22	30.48
15.	Rotter I-E (I-E)	10.24	3.67	10.06	3.51	10.15	3.59
16.	Part-time work experience (WKX)	12.01	11.10	13.22	10.57	12.62	10.83

Table 2

Means and Standard Deviations Scores of

Criterion and Predictor Variables for

Grade 12 Sample

Variables		Males (N = 119)		Females (N = 137)		Total (N = 256)	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
1.	AT1	5.21	2.45	4.79	2.24	4.98	2.35
2.	AT2	8.82	1.34	9.34	0.80	9.10	1.11
3.	AT3	8.94	1.20	9.10	1.24	9.03	1.22
4.	AT4	7.46	2.30	7.58	2.18	7.52	2.23
5.	AT5	5.50	1.23	5.49	1.29	5.49	1.26
6.	ATT	34.49	4.91	35.68	4.07	35.13	4.51
7.	P1	14.44	2.75	15.59	2.24	15.05	2.55
8.	P2	17.27	2.04	17.45	1.86	17.37	1.94
9.	P3	13.99	2.67	14.58	2.58	14.30	2.63
10.	P4	12.13	3.44	13.30	3.31	12.76	3.41
11.	P5	10.34	2.75	11.41	2.63	10.91	2.73
12.	PT	68.17	9.69	72.33	8.72	70.39	9.40
13.	DIQ	109.41	11.80	105.01	13.15	107.06	12.71
14.	TSC	336.17	31.05	333.97	28.84	334.99	29.85
15.	I-E	9.64	3.45	9.76	3.66	9.70	3.56
16.	WKX	31.99	14.00	27.40	14.22	29.53	14.28

Table 3

Intercorrelations of Career Maturity, Intelligence,

Self-Esteem, and I-E Variables for the Total Smaple (N = 535)[a]

	AT1	AT2	AT3	AT4	AT5	P1	P2	P3	P4	P5	DIQ	TSC	I-E
AT1	1.00												
AT2	.20	1.00											
AT3	.08	.12	1.00										
AT4	.58	.17	.14	1.00									
AT5	.31	.21	.18	.39	1.00								
P1	.04	.33	.23	.07	.21	1.00							
P2	.11	.35	.16	.20	.25	.53	1.00						
P3	.03	.23	.14	.11	.19	.48	.54	1.00					
P4	.08	.27	.15	.12	.22	.44	.45	.43	1.00				
P5	.03	.27	.12	.04	.15	.46	.45	.47	.47	1.00			
DIQ	.02	.26	.21	.06	.28	.39	.43	.35	.45	.31	1.00		
TSC	.21	.09	.10	.26	.31	.17	.16	.11	.11	.06	.13	1.00	
I-E	-.13	-.15	-.13	-.13	-.07	-.12	-.17	-.11	-.12	-.08	-.06	-.17	1.00

[a] Coefficients $\geq$ .09 are significant at the .05 level of significance

Table 4

Contribution of Predictor Variables to Explained Variance of Career Maturity Regression Equations for the Total Sample (N = 535)

CMI Variable	Incremental Contribution of Predictor Variables to Explained Variance R^2					Total Explained Variance R^2
AT1	TSC .04	I-E .01				.05
AT2	DIQ .07	SX .05	I-E .02			.14
AT3	DIQ .04	I-E .02	SX .01			.07
AT4	TSC .08	WKX .01				.09
AT5	TSC .10	DIQ .06	GR .01			.17
ATT	DIQ .09	GR .04	TSC .03	SX .02	I-E .02	.20
P1	DIQ .15	SX .08	GR .06	TSC .01		.30
P2	DIQ .18	GR .08	SX .02	I-E .02		.30
P3	DIQ .13	GR .04	SX .03			.20
P4	DIQ .20	SX .04	GR .03			.27
P5	DIQ .10	SX .09	GR .05	I-E .01		.24
PT	DIQ .26	GR .09	SX .08	I-E .01		.44

Table 5

Varimax Rotated Factor Loadings of

Career Maturity Variables

Total Sample (N = 535)

Variables	Rotated Factors I	II	
1. AT1	.00	.70	.50
2. AT2	.40	.23	.21
3. AT3	.22	.16	.07
4. AT4	.06	.81	.67
5. AT5	.25	.46	.28
6. P1	.71	.06	.51
7. P2	.72	.17	.55
8. P3	.68	.06	.47
9. P4	.63	.11	.41
10. P5	.67	.01	.44
% Total Variance	28.5	12.6	41.1
% Common Variance	69.4	30.6	100.0

Table 6

Varimax Rotated Factor Loadings of Career

Maturity, Intelligence, Self-Esteem, and I-E Variables

Total Sample (N = 535)

Variables	Rotated Factors I	II	h^2
1. AT1	-.04	.69	.48
2. AT2	.39	.24	.21
3. AT3	.23	.18	.08
4. AT4	.01	.79	.63
5. AT5	.24	.50	.31
6. P1	.70	.10	.51
7. P2	.71	.21	.55
8. P3	.67	.09	.45
9. P4	.65	.13	.44
10. P5	.64	.03	.42
11. DIQ	.57	.11	.34
12. TSC	.13	.36	.15
13. I-E	-.15	-.19	.06
% Total Variance	32.86	13.4	46.26
% Common Variance	71.0	29.0	100.0